Society Reports.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated meeting, February 26th, 1894.

President, Dr. WHARTON SINKLER, in the chair.

Dr. WILLIAM TAYLOR read a paper on

TREPHINING FOR MIDDLE MENINGEAL HEMORRHAGE WITHOUT FRACTURE—AND REPORTED THREE CASES.

ABSTRACT.

He described briefly the anatony of the parts involved, the symptoms usually accompanying rupture of the artery and gave a short account of the surgical technique.

CASE I.—A man, aged 48 years, who had fallen down stairs and injured his head, but with no evidence of fracture of the skull. He was stunned by the fall, but soon regained consciousness and walked around the room for some time. He again became unconscious and in this state was brought to St. Agnes Hospital.

He had constant convulsive movements of the right side and paresis of the left side of the body, with paralysis of the left side of the face.

A button of bone was first removed from the right side of the skull and the anterior branch of the middle meningeal artery found to be uninjured. A similar button of bone was then removed from the left side of the skull and the ruptured anterior branch of the artery secured by ligation and packing with gauze after a large blood clot had been removed.

The patient died in two days. There was no fracture of the skull, but an apoplectic clot in the right hemisphere of the brain was discovered. This was the cause of the left-sided motor disturbances. It was now known for the first time that the patient had had an apoplectic seizure some six weeks before the injury just described.

CASE II.—A man, aged 50 years, admitted to St. Agnes Hospital under the care of Dr. W. W. Keen. He had fallen from a hay loft, striking upon the top of his head. When seen by Dr. Keen, about one hour after the accident, he was unconscious, the left pupil dilated, but there was no fracture of the skull. The skull was trephined and the anterior branch of the middle meningeal artery was seen to be ruptured at two points, and the posterior branch was likewise ruptured at two points.

The patient died very soon from the loss of blood and severity of the injury.

CASE III.—Was one of intracranial (cerebral) hemorrhage, involving fibres from the cuneus and producing hemianopsia.

The patient was a slender woman of 65, who had fallen down stairs, striking the back of her head.

She was unconscious at first, but the next day, although not able to manifest desires, she found a lighted candle with her eye when the candle was carried to the left of the middle line, but when the light was carried to the right of the middle line she would not follow it. There was no paralysis at first, but gradually in about thirty-six hours after the accident, she became comatose and did not move her extremities.

No operation was attempted, as she was dying when first seen by Drs. Keen and Taylor.

Post-mortem examination showed no fracture, but a cortical clot extending deeply so as to moisten the fibres for the cuneus. This clot was directly beneath the posterior branch of the middle meningeal artery, and was the point selected for operative interference had that been possible.

DISCUSSION.

Dr. W. W. KEEN.—There are a few points to which I should like to call attention in connection with these cases. First of all, it seems to me that the gravity of the injury, the ease of diagnosis in the large majority of cases and the success of treatment are not appreciated either in our text books or by the profession at large. I am very glad that Dr. Taylor has reported three fatal cases, because we want to know something with reference to results with and without operation. If none of these cases had been operated upon they would all without question have died. Operation gave the only possible chance of recovery. The difference in result between the non-operated cases and the operated cases has been studied by Wiesmann, who places the mortality of the first class at 89·1 per cent., and of the second class at 32·7 per cent.

The mechanism of the tearing of these vessels was well illustrated to me last Wednesday in a case where I operated for the removal of the Gasserian ganglion. After turning down the flap of bone and scalp, as I was about lifting the middle cerebral lobe with my finger, suddenly a violent hemorrhage took place from the posterior branch of the middle meningeal and I perceived that it was due to the fact that a large branch was given off to penetrate the bone and when my finger lifted the dura this was torn. I have no doubt that in the majority of cases where this lesion follows a blow it is due to this momentary separation of the dura from the bone tearing the branches in this manner. There is, I believe, only one instance on record of spontaneous rupture of the middle meningeal. This was a French case reported by Michaux (*Rev. de Chir.*, 1891, 376). The man was an absinthe drinker. He recovered after trephining.

In making the diagnosis, the first point of all and the one of greatest value, as Dr. Taylor has indicated, is the period of consciousness between two periods of unconsciousness—the primary stunning and the secondary coma. This period of consciousness, if it exists, which is not always the case, should always make us suspect rupture of the middle meningeal. The man reported by Dr. Taylor, who had fallen on his head in a stable, had four ruptures, two of the anterior and two of the posterior branch. There was absolutely no history of consciousness, and I have every reason to believe that there was no period of consciousness, because, when I saw him about two hours after the accident, the clot was so large that when I opened the skull it took nearly the entire length of my finger to reach the dura. The clot was probably quite as large as my fist.

As to the localizing symptoms, they fall into three categories. In the first place there are the motor symptoms, because, fortunately, this artery lies in the neighborhood of the motor zone. We have motor aphasia from pressure at the bottom, then involvement of the face, then of the arm, and rarely, unless the hemorrhage be enormous, involvement of the leg centres. I think we cannot insist too strongly that the site of all operations should be determined, not by the seat of the injury or supposed seat of the injury, but by the localizing symptoms. A number of instances has been recorded by Jacobson and others of erroneous treatment owing to the fact that localizing symptoms were not depended upon.

We have, secondly, the dilatation of the pupil as another localizing sign. In one of the cases reported the dilatation of the pupil was the only localizing symptom that I had. The pupil on the left side was a little larger and a little more sluggish than that on the right and this determined me to operate on the left side. If this had failed, the only proper course would have been to have operated on the opposite side. In the last case narrated the very careful observation of Dr. Cross was the only localizing symptom. If we had made a diagnosis from the movements of the patient's hand to the right side of the head, we should have been wrong. The observation of Dr. Cross seemed to indicate that the left half of each retina was blind, and, therefore, the left optic tract and the left cuneus were involved.

With regard to the diagnosis between rupture of the middle meningeal and the middle cerebral artery, I do not think that a satisfactory and accurate diagnosis can be made, nor do I think that this is essential. Whether the clot be inside or outside of the dura is, surgically speaking, a matter of small moment.

The control of the hemorrhage should, if possible, always be by ligature. Sometimes, where there is rupture of the main trunk low down near to or at the foramen spinosum, this may not be possible. In these cases the hemorrhage can sometimes be prevented by packing. I had this illustrated last Wednesday when removing the Gasserian ganglion. In attempting to discover the third division of the fifth nerve, using Allis's blunt dissector, the middle meningeal was ruptured in the foramen spinosum. So long as the dissector remained in the foramen, hemorrhage was arrested. While controlling the bleeding in this way I removed the third branch and destroyed the ganglion. I then substituted my left forefinger for the dissector. Then I smeared over a piece of iodoform gauze with Horsley's putty and inserted this over the opening, and then packed tightly with gauze. This controlled the bleeding, and three days later I removed the gauze with great care and the hemorrhage remained arrested. No bleeding has occurred since.

Dr. ERNEST LA PLACE.—Dr. Keen has covered pretty much all the points, and I can add little except the report of a case. In this case there was that interval of consciousness lasting half an hour to which reference has been made. This man was struck on the side of the head with a whip handle, but there was no fracture. Half an hour later the arm became paralyzed and he gradually lost consciousness. He was then brought to the hospital and I immediately trephined and removed the clot. The bleeding was controlled by packing the iodoform gauze as the artery could not be readily found.

I note in the paper that the author uses cat-gut to sew up the meninges. I have always been afraid of cat gut, owing to the ease with which infection takes place. I have always used the finest Chinese silk and have had no reason to regret it.

In this connection, I should like to mention a case reported by Smart in Sajous' Annual, of hemorrhage at the base of the brain as the result of a fall without fracture. There was left hemianopsia, slight motor aphasia, and general dullness without complete unconsciousness. The diagnosis was not clearly made out, but in as much as the symptoms were progressive, it was thought wise to trephine, and Dr. Chiene, of Edinburgh, trephined on a level with the zygomatic arch and removed from the under surface of the brain a large amount of blood. The exact source of the bleeding was not made out. In his remarks he advises the use of the trephine somewhere in the neighborhood of the suspected hemorrhage, even if the absolute diagnosis cannot be made out. Some two years ago, I insisted on that point and related a case of hemorrhage at the base of the brain the result of a wound produced by a fencing foil. This injured the cavernous sinus leading to the formation of a clot. I trephined in the same locality as Dr. Chiene and removed a large clot. The following day the dressings contained at least four ounces of serum. I believe that there is still a large field to be studied in the way of thorough drainage of the cranial cavity.

Dr. FRANCIS X. DERCUM.—In regard to supra-dural hemorrhage, the symptoms, it seems to me, are usually clear, but both in supra-dural hemorrhage and in intrameningeal hemorrhage doubt now and then arises when the hemorrhage is complicated with signs of concussion. To illustrate this, I might recite a case which occurred in the Philadelphia Hospital some years ago. An epileptic fell in a fit striking the back of the head on the hard pavement. One of the surgeons happened to be in the institution and I summoned him in consultation. The man was unconscious and had stertorous breathing, and it seemed that one side was a little more relaxed than the other, and on that side, also, the pupil was dilated. I suggested that the case be trephined. I did not expect to find supra-dural hemorrhage as the interval of consciousness was lacking, but thought that hemorrhage into the arachnoid space would be found. Although the symptoms seemed to point distinctly to one side, trephining on that side failed to reveal the clot. The patient's condition was such that the surgeon declined to go further. The autopsy showed an extensive subdural clot on the other side. Trephining could hardly have afforded relief as the effusion was much diffused over the lateral aspect and the base of the brain. Where the bleeding is so widely diffused, the mechanical difficulties might be overcome by making openings in the skull some distance apart and irrigating from one to the other.

In a case in which we have symptoms of cerebral concussion complicating those of fracture or hemorrhage, trephining should be done with great rapidity, and failing to find the source of trouble on one side we should then trephine on the other. The added number of openings in the skull will do no harm.

In some of these cases I do not see the way clear to make a differential diagnosis, and to say how far the symptoms are due to concussion and how far to cerebral hemorrhage, and I should like to hear an expression of opinion from the surgeons on this point.

Dr. WHARTON SINKLER.—I saw Mrs. A. with Dr. Cross, on the evening of December 30th. I found her comatose, breathing stertorous, and entirely unconscious of all her surroundings. The pupils of both eyes were widely dilated, but the coma was so deep that she did not observe light, even when a candle was held close to her eyes. There were involuntary movements of both the left and the right arms. These movements were not spasmodic, but the arm was lifted and moved about as if under the influence of the will—the right arm was used most freely. There was no evidence of any sensation to touch, or pin pricks. The knee-jerks were absent; and irritation of the soles of the feet caused no reflex contractions. A careful examination of the scalp showed no external evidences of injury, and no depression in the skull could be detected.

Taking the history of the case in consideration, and Dr. Cross's observation in regard to the presence of hemianopsia, it seemed that there had been a hemorrhage sub-dural or extra-dural in character, and in the region of the left cuneus. The absence of paralysis made it improbable that there had been an extensive hemorrhage in the substance of the brain as this would, no doubt, have reached the motor region. As the patient's pulse was good, the heart sound and the general condition fair, it seemed a case in which a trephining over the seat of the supposed lesion would be a justifiable operation. At all events, the prognosis was almost surely fatal if no operative interference was made, and, under these circumstances, the question of the operation with a full explanation of the condition of affairs was laid before the family. They at once agreed to take the chances of an operation, and I, therefore, asked Dr. Keen to visit the patient, with a view of trephining. The patient died shortly after Dr. Keen reached the house. The death was quite sudden, from failure of the heart. A few minutes before, the pulse was good and the patient's condition apparently as favorable as it had been three or four hours previous. The autopsy, of which Dr. W. J. Taylor has given a description, shows that had an operation been done, it would have been easy to remove the clot which was found at the autopsy.

The question, as to whether the hemorrhage had preceded the fall, or was the result of a blow upon the head, is one of great interest. The patient had a history of one or more attacks of vertigo previously, and it seems not improbable that she had an attack of vertigo while going up stairs and fell in consequence.

The diagnosis between sub-dural or extra-dural hemorrhage, and hemorrhage into the substance of the brain, is one which it is not always easy to make. Hemorrhage into the substance of the brain, however, usually occurs from the middle meningeal artery, or one of its branches, and the hemorrhage then takes place into the internal capsule, or in the motor region of the cortex. Under these circumstances there would, of necessity be paralysis of motion, more or less extensive, as well as compression symptoms. The history of the case is of great assistance in deciding the question as to whether the lesion is meningeal or cerebral. The operations which have been done for hemorrhage just beneath or over the dura have been few in number, but the results have been sufficiently satisfactory to make us feel encouraged to operate in a certain class of cases. The cases most favorable are those in which an injury has caused the lesion and in patients whose vessels are healthy.

When we see a case like that which has just been referred to, in which localizing symptoms are so well marked, I think it is our duty to recommend a surgical operation, provided that the patient's condition is sufficiently good to justify it. The case under consideration was hardly a good subject for operation; her age was advanced, the vessels were atheromatus, and it was a question whether the hemorrhage was the result of the fall which she had sustained or whether a diseased vessel had given way; so that the operation would have been attended with difficulties, and it is not likely that even had the operation been successfully done, that the patient would have survived many months.

Dr. W. W. KEEN.—With reference to the diagnosis between concussion and hemorrhage, there are several symptoms which I think that we can utilize. The period of consciousness, if it exists, is of great value. In concussion there would not be that deep unconsciousness which we see in the secondary coma from pressure. In concussion the patient can usually be aroused by shaking or loud questioning; in the coma of compression this cannot be done. In concussion the pupils are usually equal and responsive to light. In compression from clot the pupils are usually unequal, and the one on the side of the pressure will be more or less dilated, and also be very sluggish or not at all responsive to light. The rise of temperature which follows middle meningeal hemorrhage is not usual in connection with concussion. As time goes on, if the symptoms are to concussion, the condition of the patient will improve, whereas if they are due to hemorrhage, they will go from bad to worse. Moreover, in concussion alone, there would not be distinct localizing symptoms.

I should like to emphasize the statement already made that if we do not find the clot on one side, we should trephine on the other side. Especially, as there are on record a few instances in which the localizing signs have been misleading and the hemorrhage has been on the side opposite to that indicated.

Dr. Taylor has confined his remarks to cases of hemorrhage without fracture. These, of course, are much fewer than those with fracture. I do not think that we can too strongly impress the profession at large with the fact that with moderate violence, wholly insufficient to fracture the skull, the middle meningeal or middle cerebral may be ruptured, and, as a consequence, death will almost invariably result unless operative interference is undertaken.

Dr. F. X. DERCUM.—I alluded not so much to the differential diagnosis between concussion and meningeal hemorrhage, but to the difficulty in recognizing cases in which the concussion is a complicating factor.

Dr. CHARLES K. MILLS.—Several points in connection with localization are of interest. A case was mentioned in the paper in which there was spasm on one side and loss of power on the other; and the spasm was on the side opposite the lesion. Dr. Taylor also said that the hemorrhage was dural and made the statement that the symptoms would probably be the same as when the hemorrhage was subdural or cortical. This may or may not be the case. This is occasionally a source of error in studying localization symptoms. I called attention to the fact in 1888, which has been referred to before, that the spasmodic symptoms of dural hemorrhage are, or may be, on the same side as the lesion, and that this is probably attributable to the fact that the spasm is the result of conveyed or reflected irritation through branches of the fifth nerve to the pons. In these cases the spasm is likely to have a large tonic element. You may have this in sub-dural, but more especially in supra-dural clot. In some of these instances there may be an association of both dural and cortical spasms.

Another point which is passed over too frequently is the association with the fracture or large hemorrhage, of numerous small hemorrhages in various portions of the brain. The same thing occurs in a case of large hemorrhage into the brain without external violence. Duret has indicated the mechanism of the occurrence of these hemorrhages. I might say that these minute hemorrhages are particularly liable to occur when fracture has not taken place. When we come to the consideration of confusing symptoms it is important to bear in mind the possibility that the symptoms referable to the other hemisphere may be due to the more or less minute extravasations which accompany the large and supreme extravasation.

A symptom which has always interested me in these cases is the dilated pupil. I have never been able to reach an entirely satisfactory explanation of the occurrence of this symptom. As I have observed these cases, it is not accompanied by other indications of third nerve paralysis. What would seem to be a simple explanation is, that the blood goes to the base and by direct pressure on the third nerve or some of its root fibres causes the symptom, but this does not seem to be likely. Various other explanations suggest themselves, but none are sufficient.

When one talks about differentiating concussion from hemorrhage it is necessary to know what is meant by concussion. As I understood Dr. Keen's remarks, he rather indicated what we know in popular language as a stun from a blow, which is often seen and from which the patient recovers. We have all varieties of stunning beside those in which the patient rapidly recovers without any after effects. In some varieties of concussion you can have more serious and fatal symptoms than occur in ordinary hemorrhages.

Dr. HOWARD F. HANSELL.—Since dilatation of the pupil has been referred to as a diagnostic symptom, I have been endeavoring to find in my own mind a satisfactory explanation of it. While I believe that it can help to indicate the side of the brain affected, I think that its localizing value ceases there. We know that dilatation may be due to paralysis of the pupillary branch of the third nerve, in which case the lesion will be nuclear and situated in the floor of the fourth ventricle, or it can be due to over-action of the sympathetic fibres without paralysis of the pupillary branch. But neither of these explanations is satisfactory, and I have concluded that the dilatation must be because the optic nerves on that side are paralyzed by pressure. The light reflex is a circle, the first part of which is the impression on the retina, which is carried back through the optic nerve. If the retina is not perceptive we will have dilatation of the pupil. In nearly all cases of blindness from paralysis of the optic nerve, we find a dilatated pupil, and this without any affection of the sympathetic or the third nerve.

The diagnosis of hemianopsia, present in one of the cases, must have been attended with considerable difficulty. There are central visual fibres in the optic nerve which run out from the fovea centralis of each retina, and these are seldom affected in hemianopsia. Since the image of an object looked at falls on the fovea centralis and its immediate neighborhood, the visual axes would naturally be directed towards a light, even in cases of hemianopsia. The symptoms of dilated pupil and hemianopsia are, in my opinion, simply indications of the side of the brain on which the lesion is and do not localize definitely.

Dr. W. W. KEEN.—I would state that in the third case there was not dilatation of the pupil on one side, but both pupils were dilated. While I admit that Dr. Cross's observation as to hemianopsia was a crude one, yet it was necessarily so, and it was the only localizing point that we had. The autopsy showed that had we operated on the indication that it furnished, we should have been correct.

Dr. ERNEST LA PLACE.—With regard to the diagnosis between concussion and other conditions, I take it that concussion is really, so far as diagnosis is concerned, purely functional. It is a shaking up of the brain, it is a mild striking of the brain against the skull. This is the mildest type. Anything beyond that to the extent of the rupture of the minutest capillary ceases to be concussion, but enters the domain of contusion. The extent of the contusion may vary to any degree depending upon the number of capillaries that have ruptured. This causes hemorrhage and leads to compression. Where there is simple concussion the man is dazed for a time but he comes out of that and there is no permanent change. Where there is contusion there is hemorrhage, the effects of which will remain until absorption has taken place, and even after absorption, and may result in certain forms of insanity, of permanent headache or of epilepsy.

Dr. CHARLES K. MILLS.—In the sense in which Dr. La Place defines concussion, I am inclined to doubt if we ever have unconsciousness produced. Of course, theoretically, it is possible for the brain to be concussed without hemorrhage taking place. The blood vessels of the nervous system, and the nervous structures themselves, are so delicate that I do not accept molecular concussion as taught by Erichsen as explaining many phenomena. In all the severe cases of concussion it is probable that hemorrhage from the capillaries at least takes place. I do not believe that this is the result of contusion in the sense of impact against the inside of the skull. The physical principles underlying the occurrence of these hemorrhages have been explained by Duret and others, and the hemorrhages may occur in parts of the brain not in contact with the skull. Concussion, when severe enough to produce unconsciousness is, I presume, always associated with some vascular lesion. With regard to the explanation of the dilated pupil, I do not think it necessary to bring hemianopsia into the discussion. The explanation is probably that which has been indicated, that the fibres which complete the reflex pupillary arc are interfered with. It has been shown by microscopic examination that one little set of fibres of the optic tract dip into the gray substance of the base of the brain near the tuber cinerum, and pressure on the optic tract of one side including these fibres might explain the dilatation of the pupil.

Dr. F. X. DERCUM.—I cannot accept the explanation of the dilatation of the pupil which has been given. The fibres of the optic tract which form part of the arc for the reflexes of the iris go to one half of each eye, and thus the retinæ of both eyes are equally deadened and there is slight dilatation of both pupils, never inequality.

Another explanation is this: The nuclei of the oculomotor nerves, which give origin to the fibres supplying the iris, are exceedingly delicate. They are much less robust than the cells which supply the gross muscles, and we know further that these fibres react to very delicate and comparatively slight impressions; thus, in syphilitic cases we often see marked dilatation when there is only slight involvement of the extrinsic muscles. In hemorrhage, we have a sudden increase of the intracranial pressure and these delicate structures react readily to slight changes in pressure, and that is why we have the dilated pupils.

Dr. W. W. KEEN.—The word "concussion" when used symptomatically is a very convenient one, but when used pathologically it is, I think, inaccurate. I do not believe in concussion as expressive of simply a functional lesion. I cannot conceive of there being symptoms of concussion of any severity without some physical change in the brain itself. This change may be a rupture of the capillaries, but we must remember also that the nerve fibres are quite as delicate and as easily ruptured as the capillaries. I, therefore, believe that the word concussion, in a pathological sense, indicates a lesion, it may be of the blood vessels or of nerve fibres or possibly of the nerve cells, or of all these structures.

Dr. W. L. ROBINSON, Danville, Va. (By invitation).—I am not a neurologist, and in the line of thought that you have been discussing, I do not think that I could add anything. If, however, two cases that have occurred to me in the last eighteen months would be of interest to you, I shall gladly relate them. Eighteen months ago, I was called to see a little child, three years of age, who had fallen some twenty feet, striking the head on the edge of a plank. There was a long swelling half as thick as my wrist on the right side of the head. The strange thing was that there was paralysis of that side. There was great stertor and difficulty of breathing. The skin was not broken. I had no instruments with me, so I sterilized my pen-knife and some gauze and opened the scalp and turned out the clot. Instead of finding a depression of the bone there was a marked separation; it seemed to be an eighth of an inch wide by five inches in length. After removing the clots, I laid a piece of gauze over the wound and gave an injection of chloral and kept the child thoroughly narcotized. The moment that it came from under the chloral, spasm would commence on that side. The child was seen by a number of physicians and they all said that it would die. I kept it under chloral three days and nights. I then let up on the chloral and it recognized its mother and gradually recovered without spasm. Twelve months later, I again saw it, a healthy, strong child without any paralysis.

The second case was that of a young man who, on the 12th of July, was diving in shallow water and struck his head and did not come up. His friends pulled him up. His family physician was with him at the time and thought that there was nothing wrong. Four men brought him to the hotel. He had no power of motion on either side below the neck, but was perfectly conscious. I made his comrades hold his heels, while I made traction on the head and got sensation in the fingers. I then applied extension and counter-extension and kept him so. I subsequently put on a plaster cast. In November, his physician removed the cast and he was a well man. You gentlemen can explain the case, I cannot, except by a dislocation of the vertebra.

Dr. CHARLES S. POTTS read a paper on

A CASE OF ACUTE DELIRIUM, WITH AUTOPSY AND BACTERIOLOGICAL EXAMINATION OF THE CEREBRO-SPINAL FLUID.

ABSTRACT.

The patient, a member of the medical profession, *æt.* 33 years, of good habits, but sensitive nature, had been having considerable family trouble and worry. In June last was afflicted with urticaria, lasting until August, when a carbuncle made its appearance upon his upper lip. This was opened and curetted ten days after its appearance. For several days previous to its being opened the patient had been taking rather large quantities of whisky and morphia. This was stopped when he came under medical supervision, and he did well for nine days, when at 10:30 P. M. he became violently delirious and endeavored to jump out of the window. The next day he was, with the exception of brief intervals, rational, but in the afternoon again became violently delirious, and remained so until death. His temperature was normal until the evening of August 24th, three days after the commencement of the attack, when it was 101° Fahr. From that point it gradually arose until three hours before death, when it was 108·2° Fahr. At that time delirium gave place to coma and the patient died at 11 P. M. At no time was headache complained of. The autopsy was made seventeen hours after death by Dr. J. W. McConnell in the presence of Drs. C. K. Mills, Berlet, Klemm and myself. The brain and meninges appeared to be normal, as did all the other organs of the body.

Cultures made from the cerebro-spinal fluid by Dr. D. Braden Kyle demonstrating the presence of the so-called micrococcus lanciolaturs or pneumonococcus of Fraenkel and Weichselbaum, and the staphylococcus pyogenes aureus and albus.

Microscopic examination of the gray matter of the cortex showed the appearances described by Osler, *i. e.*, perivascular exudation, and leucocytes in the lymph sheaths and perigangliar spaces.

As the germs isolated in this case are those usually found in meningitis we would advance as a possible explanation for the lack of microscopic findings in spite of the severe symptoms present in this disease, that the taxæmia was so violent as to cause the death of the patient before appearances visible to the naked eye had time to develop.

DISCUSSION.

Dr. CHARLES K. MILLS.—I saw the case in consultation, but have nothing especial to add. The case presented every appearance of acute delirium. It is to be regretted that special precautions could not have been taken in making the autopsy, but at the same time I believe that the observations are of value.

Dr. F. X. Dercum.—This report is interesting on account of the discovery of the pneumonococcus. We are told by German writers that the pneumonococcus is by far the most common germ found in certain forms of meningitis, especially certain purulent forms though it is usually associated with other forms of pyogenic bacteria. Its discovery in a case, the history of which corresponds with that of acute delirium, is interesting. We have on other occasions discussed the connection between acute delirium and meningitis, and I think that the concensus of opinion was that we had infection in many cases of acute delirium. In this case it looks as though there would have been purulent meningitis, had the patient lived long enough.

Dr. Ernest La Place.—I should like to add that the pneumonococcus of Fraenpel inhabits the mouth and is very common. We now think that pneumonia is due to the infection of the lung with a germ that is often present in the mouth. Although many examinations of the blood might not reveal the germ, yet now and then we find germs in the capillaries. If we puncture the finger and examine the blood, it is possible that we will find nothing. Even if in two or three hundred examinations we find nothing, we must remember that we have examined only a few drops of blood. There may be germs present, and if only one travels to the spot, that one is sufficient to start the infection.

Two Cases of Brain Tumor where Optic Neuritis was the only Positive Sign. Autopsies.—E. P. Morrow (*Journ. Am. Med. Assoc.*, October 21, 1893.)

The title of this paper suffices to indicate its contents. In the first case, the autopsy revealed a tumor, gliomatous in nature at the base of the middle temporal lobe. The second case had a very suggestive and straightforward history, viz., increasing unsteadiness of gait, attacks of vomiting, gradually progressive lethargy, eventuating in stupor, widely dilated pupils, eyes straight, beginning optic neuritis, progressive emaciation, and finally complete blindness. The autopsy revealed tumor of superior vermis of cerebellum extending equally over each lateral hemisphere, and in nature a glioma. J. C.